

Amendment to the Claims:

1. (Currently Amended) ~~Piston~~ A piston compressor comprising:
a cylinder housing which forms a cylinder wall that defines a cylinder;
a piston [(12)] which oscillates in [[a]] the cylinder [(14)] and, in a filling position, compresses gas in a cylinder pressure space [(20)], the piston
5 defining a piston wall which faces the cylinder wall;
gas bearing nozzles [(28)] arranged [[in]] adjacent the piston area for gas-supporting the piston; [(12),]
a compressed-gas accumulator [(34)] connected with the gas bearing nozzles; [(28),]
10 a compressed-gas supply line [(18)] between the cylinder pressure space [(20)] and the compressed-gas accumulator; [(34),] and
an inlet valve [(42)] in the compressed-gas supply line [(18)], the inlet valve being open in the filling position of the piston [(12),] ~~characterized in that~~
15 ~~that~~ the inlet valve [(42)] is being defined by a cylinder wall opening [(22)] and a piston wall opening [(38)] which, in the filling position of the piston [(12)], are located opposite each other and define an open valve, and, in a non-filling position, are closed by the piston wall [(40)] and the cylinder wall [(24)], respectively, and define a closed valve.
2. (Currently Amended) ~~Piston~~ The piston compressor according to claim 1, ~~characterized in that~~ wherein at least one of the cylinder wall opening [(22)] and
and[[/or]] the piston wall opening [(38)] are configured as a circular groove [(39)].
3. (Currently Amended) ~~Piston~~ The piston compressor according to claim 1 [[or 2]], ~~characterized in that~~ wherein the compressed-gas supply line [(18)] is arranged in the cylinder housing [(16)] between the cylinder pressure space [(20)] and the inlet valve [(42)].

4. (Currently Amended) ~~Piston~~ The piston compressor according to claim 1 ~~[[or 2]], characterized in that~~ wherein the compressed-gas supply line ~~[[164]]~~ is arranged in the piston ~~[[112]]~~ between ~~the a piston end bottom~~ ~~[[172]]~~ and the piston wall.

5. (Currently Amended) ~~Piston~~ The piston compressor according to ~~one of claims 1-4~~ claim 1, ~~characterized in that~~ wherein the compressed-gas accumulator ~~[[34]]~~ and the gas bearing nozzles ~~[[28]]~~ are arranged in the piston ~~[[12]]~~.

6. (Currently Amended) ~~Piston~~ The piston compressor according to ~~one of claims 1-5~~ claim 4, ~~characterized in that~~ wherein in the compressed-gas supply line ~~[[164]]~~ a second inlet valve ~~[[148]]~~ defined by a second cylinder wall opening ~~[[176]]~~ and a second piston wall opening ~~[[174]]~~ is arranged.

7. (Currently Amended) ~~Piston~~ The piston compressor according to ~~one of claims 1-6~~ claim 1, ~~characterized in that~~ wherein in the cylinder, ~~[[114]]~~ an anti-twist device is provided which prevents the piston ~~[[112]]~~ from twisting in the cylinder ~~[[114]]~~.

8. (Currently Amended) ~~Piston~~ The piston compressor according to ~~one of claims 1-7~~ claim 1, ~~characterized in that~~ wherein each gas bearing nozzle ~~[[28]]~~ is formed by a wire inserted in a nozzle bore.

9. (Currently Amended) ~~Piston~~ The piston compressor according to ~~one of claims 1-7~~ claim 1, ~~characterized in that~~ wherein each gas bearing nozzle ~~[[28]]~~ is formed by a gas-permeable plug of sintered material.

10. (Currently Amended) ~~Piston~~ The piston compressor according to ~~one of claims 1-9~~ claim 1, ~~characterized in that~~ wherein the gas bearing nozzles ~~[[28]]~~ are arranged in a respective transversal plane ~~at the level of the two piston adjacent end portions of the piston~~.

11. (Currently Amended) ~~Piston~~ The piston compressor according to ~~one of claims 1-10 claim 1, characterized in that wherein~~ the gas bearing nozzles ~~[[28]]~~ are provided in the piston ~~[[12]]~~.

12. (Currently Amended) ~~Piston~~ The piston compressor according to ~~one of claims 1-11 claim 1, characterized in that wherein~~ the gas bearing nozzles ~~[[229]]~~ are arranged in the cylinder housing ~~[[216]]~~.

13. (Currently Amended) ~~Piston~~ The piston compressor according to ~~one of claims 1-12 claim 1, characterized in that further including~~ a pneumatic piston end-position control device is ~~provided~~ which comprises:

a control pressure accumulator ~~[[360]]~~ in the piston ~~[[312]]~~, wherein
5 the control pressure accumulator ~~[[360]]~~ is connected with a control pressure accumulator piston wall opening ~~[[356]]~~ in the piston wall,

a constant-pressure gas source ~~[[350]]~~ connected via a line ~~[[352]]~~ with a cylinder wall opening ~~[[354]]~~ which defines together with the control pressure accumulator piston wall opening ~~[[356]]~~ a control valve ~~[[358]]~~ and, in
10 the ~~end~~ filling position of the piston ~~[[312]]~~, is located opposite the control pressure accumulator piston wall opening ~~[[356]]~~, and

a line ~~[[364]]~~ between the cylinder pressure space ~~[[366]]~~ and a cylinder wall opening ~~[[368]]~~ which together with the control pressure accumulator piston wall opening ~~[[356]]~~ defines a discharge valve ~~[[370]]~~ and, during a cycle in
15 a ~~non-end~~ filling position of the piston ~~[[312]]~~, is located opposite the control pressure accumulator opening ~~[[356]]~~.

14. (Currently Amended) ~~Stirling~~ A stirling cooler comprising:

a cold finger, ~~[[460]]~~ and

a piston compressor ~~[[10]]~~ according to ~~one of claims 1-13 claim 1,~~
wherein:

5 the cold finger ~~[[460]]~~ comprises a displacer piston ~~[[462]]~~ in a cold finger cylinder housing ~~[[464]]~~,

the cold finger [(460)] comprises a compressed-gas accumulator [(466)] and gas bearing nozzles [(468)] connected therewith for supporting the displacer piston [(462)],

10 the cold finger compressed-gas accumulator [(466)] is connected via a cold finger gas supply line [(470)] with the piston compressor compressed-gas accumulator [(34)], and

 in the cold finger gas supply line, [(470)] a valve [(480)] is arranged which is defined by a piston wall opening [(482)] and a
15 cylinder wall opening [(484)] of the piston compressor [(10)] and is opened when the piston compressor piston [(12)] is in [a] the filling position.

15. (New) The piston compressor according to claim 1, further including:

an associated supply line connected with the compressed gas accumulator and adapted for connection with an associated device.

16. (New) The piston compressor according to claim 15, further including:

an associated device accumulator connected with the associated device supply line, and

5 an associated device air bearings connected with the associated device accumulator.

17. (New) The piston compressor according to claim 16, further including:

an associated device piston supported by the associated device air bearings.

18. (New) The piston compressor according to claim 17 wherein the associated device is a cold finger.